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09/845,510	04/30/2001	James A. Bisher JR.	A-6684	2086
5642 7590 02/09/2009 SCIENTIFIC-ATLANTA, INC. INTELLECTUAL PROPERTY DEPARTMENT 5030 SUGARLOAF PARKWAY LAWRENCEVILLE, GA 30044				
EXAMINER SHANG, ANNAN Q				
ART UNIT 2424		PAPER NUMBER		
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**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

PTOmail@sciatl.com

### Office Action Summary

**Application No.**

09/845,510

**Applicant(s)**

BISHER ET AL.

**Examiner**

ANNAN Q. SHANG

**Art Unit**

2424

**Period for Reply** -- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 11 November 2008.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1, 4, 7-17, 19-23, 26, 29, 32-39, 41-44 and 56-75 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1, 4, 7-17, 19-23, 26, 29, 32-39, 41-44 and 56-75 is/are rejected.
- 7) ☐ Claim(s) 75 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

## **DETAILED ACTION**

### ***Claim Objections***

1. Claims 74 and 75 are objected to because of the following informalities:  
Applicant's Remarks indicates that claims 56-74 as newly added claims. Hence, it appears claims 74-75 should be renumbered as claims 73 and 74. Appropriate correction is required.

### ***Response to Arguments***

2. Applicant's arguments with respect to claims 1, 4, 7-17, 19-23, 26, 29, 32-39, 41-44 and 56-75 have been considered but are moot in view of the new ground(s) of rejection.

With respect to the rejection of claims 1, 4, 7-17, 19-23, 26, 29, 32-39 and 41-44, Applicant amendments claims, recites the claims limitations discusses the prior arts of record and further argues that the prior arts of record do not teach the amended claims limitations (see page 15+ of Applicant's Remarks).

In response, Examiner disagrees. Examiner notes applicant's arguments, however, Dyer discloses a content delivery system that employs three modes of delivering VOD to subscribers; where the three modes includes: two kinds of multicast applications models: a broadcast-like multicast that sends data (VOD and other content) to a very large number of destinations and a narrowcast (multicast) that sends data to a fairly small group of subscribers and further discloses pointcast (unicast) that sends data to a subscriber. The server monitors subscribers request and controls the outputs

of the multi-modulator to stream requested data accordingly to a subscriber (pointcast), small group of subscribers (narrowcast) and a large group of subscribers (multicast), using a modulator or combining subsets of modulators as needed (figs.1, 2, 6, col.4, lines 12-26 and line 31-59, col.6, line 37-col.7, line 29, line 48+, col.8, lines 27-67, col.9, lines 26-65, col.11, line 43-53 and col.16, lines 32-63). Remote Video Session Manager 'RSM' 106 or 616, "a multi-modulator" receives at its input port transport stream having a plurality of packets including a plurality of PID streams (figs.1, 2, 6, col.4, line 31-59); Information Server 102/RSM-106 'IS/RSM' 102/106) determines from a table whether a given packet of the plurality of packets is a multicast packet or a unicast packet, and assigns modulator(s) from a multi-modulator to the packets and multicasts packet via a plurality of modulators and unicasts packet is designated for transmission from only one modulator of the plurality of modulators (col.4, lines 12-26 and line 31-59, col.6, line 37-col.7, line 29, line 48+ and col.8, lines 27-67). In order to make a determination of which of the modes of delivery to send down the receives packets the IS/RSM 102/106, appends a data unit header to each packet including the modulator identifier identifying one or more of the plurality of modulators from which the packet is to be transmitted, processes each packet prior to transmission from one or more of the plurality of modulators; copying the determined multicast packets into modulators from which the multicast packet is to be transmitted (col.4, lines 12-26 and line 31-59, col.6, line 37-col.7, line 29, line 48+ and col.8, lines 27-67); IS/RSM 102/106 further provides each packet and copied packet to one of a multicast or unicast buffer in accordance with the data unit header; stripping the data unit header from each packet and copied packet

from one the plurality of modulators (col.4, lines 12-26 and line 31-59, col.6, line 37- col.7, line 29, line 48+ and col.8, lines 27-67). Dyer teaches, receiving user requests, recalling programs from memory (disk drive array, an off-line storage system such as an optical disk library, etc.), packetizing and pre-packetizing data and streams data, multicast, narrowcast or pointcast, based a determination of user requests (figs.1, 2, 6 and col.9, lines 26-65, col.11, line 43-53 and col.16, lines 32-63). Dyer is silent as to copying the determined multicast packets depending upon how many of the plurality of modulators from which the multicast packet is to be transmitted. However, in the same field of endeavor, **Du**, discloses that when a multicast connection is required of a cell (packet), the packet is copied in accordance with the number of connections defined by the multicast connection and written into a respective buffer memory (col. 11, lines 19-22). Furthermore, the claimed step of "providing each modulator identified by the modulator identifier with a copy of the given packet, where each copy has a common output PID value associated therewith" is met inherently by the fact that the packet is a copy, therefore indicating that it would have the same PID and the fact that the Dyer reference teaches providing the packets to the modulators based on the routing table, which determines the modulator assigned to each individual modems. Hence the amended claims do not overcome the prior arts of record. The amendment to the claims necessitated the new ground(s) of rejection discussed below. **This office action is made final.**

***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 1, 4, 7-17, 19-23, 26-39, 41-44 and 56-74 are rejected under 35 U.S.C. 103(a) as being unpatentable over **Dyer et al (6,305,019)** in view of **Du et al (6,088,346)**.

As to claim 1, note the **Dyer** reference figures 1-3 and 6, discloses system for interactively distributing information services having a remote session manager and further discloses a method for providing a multicast of a packet, which is included in a transport stream, in a digital network, the method comprising:

Receiving at an input port of a multi-modulator (Remote Video Session Manager 'RSM' 106 or 616) the transport stream having a plurality of packets included therein and a plurality of PID streams (figs.1, 2, 6, col.4, line 31-59);

Determining (Information Server 102/RSM-106 'IS/RSM' 102/106) from a table whether a given packet of the plurality of packets is a multicast packet or a unicast packet, where a multicast packet is designated for transmission from a plurality of modulators included in the multi-modulator and a unicast packet is designated for transmission from only one modulator of the plurality of modulators, where each modulator of the multi-modulator includes an identifier (col.4, lines 12-26 and line 31-59, col.6, line 37-col.7, line 29, line 48+ and col.8, lines 27-67);

Appending (IS/RSM 102/106) a data unit header to each packet, the data unit header including the modulator identifier identifying one or more plurality of modulators from which the packet is to be transmitted (col.4, lines 12-26 and line 31-59, col.6, line 37-col.7, line 29, line 48+ and col.8, lines 27-67);

Providing each packet to a buffer in accordance with the data unit header; a respective unicast buffer being associated with each of the plurality of modulators, when a particular modulator is available for transmitting, determining whether to retrieve a packet from the associated multicast or unicast buffer, each packet retrieved from the multicast buffer being depending on how many of the plurality of modulators from which the multicast packet is to be transmitted based on the data unit header; stripping the data unit header from each packet prior to transmission from the particular modulator (col.4, lines 12-26 and line 31-59, col.6, line 37-col.7, line 29, line 48+ and col.8, lines 27-67; and modulating and transmitting each packet and copied packet from one of the plurality of modulators; where at least some of the appending, providing, determining and stripping is performed by the multimodulator (col.4, lines 12-26 and line 31-59, col.6, line 37-col.7, line 29, line 48+ and col.8, lines 27-67).

Dyer teaches, receiving user requests, recalling programs from memory (disk drive array, an off-line storage system such as an optical disk library, etc.), packetizing and pre-packetizing data and streams data, multicast, narrowcast or pointcast, based a determination of user requests (figs.1, 2, 6 and col.9, lines 26-65, col.11, line 43-53 and col.16, lines 32-63).

Dyer fails to explicitly teach copying the determined multicast packets depending upon how many of the plurality of modulators from which the multicast packet is to be transmitted.

However, **Du** reference, discloses that when a multicast connection is required of a cell (packet), the packet is copied in accordance with the number of connections defined by the multicast connection and written into a respective buffer memory (col. 11, lines 19-22). Furthermore, the claimed step of “providing each modulator identified by the modulator identifier with a copy of the given packet, where each copy has a common output PID value associated therewith” is met inherently by the fact that the packet is a copy, therefore indicating that it would have the same PID and the fact that the Dyer reference teaches providing the packets to the modulators based on the routing table, which determines the modulator assigned to each individual modems.

Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to copy the packets that are multicast packets, in order to allow multicasting over multiple modulators.

As to claim 4, Dyer further discloses where the processing each packet prior to transmission from one or more of the plurality of modulators, where the processing includes encrypting the given packet (col.3, lines 13-25 and col.9, line 26-col.10, line 12).

As to claim 7, Dyer further teaches receiving a message indicating that an output buffer associated with the particular modulator of the plurality of modulators is ready to receive a packet for transmission and sending a packet from one of the multicast buffer



or unicast buffer to the output buffer associated with the particular modulator, where the data unit header associated with the sent packet identifies the particular modulator (col.9, line 26-col.10, line 25 and line 54+), but fails to explicitly teach unicast buffer and multicast buffer, which is met as previously discussed with respect to the rejection of claim 6.

As to claim 8, Dyer fails to explicitly teach where each unicast buffer is adapted to store unicast packets that are for transmission from the given modulator associated with the unicast buffer, and the multicast buffer for storing multicast packets therein intended for transmission from two or more of the modulators.

However, Du further discloses a buffer for storing unicast packets and a buffer for storing multicast packets before transmission (col.11, lines 14-25).

Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to use buffer memories for storing packets, in order to modify the packets transmit the packets accordingly.

As to claim 9, Dyer teaches all of that which is discussed above with regards to claim 8, but fails to explicitly teach determining whether to check the unicast buffer associated with the particular modulator for a unicast packet for transmission from the particular modulator or to check the multicast buffer for a multicast packet, responsive to determining to check the associated unicast buffer, retrieving from the associated unicast buffer the given packet when there is a unicast packet stored therein, and responsive to determining to check the multicast buffer, determining whether a packet stored in the multicast buffer is for transmission from the particular modulator and

retrieving the given packet from the multicast buffer when the given packet is determined to be for transmission from the particular port.

However, Du further discloses a buffer for storing unicast packets and a buffer for storing multicast packets before transmission (col.11, lines 14-25).

Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to use buffer memories for storing packets, in order to modify the packets and transmit accordingly.

As to claim 10, Dyer further teaches associating a count register of a plurality of count registers with each modulator of the plurality of modulators, incrementing the count register associated with the particular modulator indicated by the message, and when a packet is retrieved, decrementing each count register associated with a modulator identified by the modulator identifier associated with the retrieved given packet (col.9, line 26-col.10, line 25).

As to claim 11, Dyer teaches all of that which is discussed above with regards to claim 10, but fails to explicitly teach unicast buffer is a first-in-first-out buffer, and when the given packet is retrieved from the given unicast buffer the given packet is the current first-in packet, and wherein when the given packet is retrieved from the multicast buffer the given packet is determined at least in part by the current status of the plurality of count registers and at least in part by the modulator identifier associated with the given packet.

However, Du further discloses buffers for unicast and multicast transmission and also proposes that newly entered packets overwrite any available packets (col.11, lines

50-51), indicating that the buffer functions as a first-in-first-out (FIFO) buffer, as is common in buffer technology.

Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to use FIFO buffers, in order to sequentially process data for the unicast and multicast buffers.

As to claims 12-13, Dyer fails to explicitly teach the determination for checking the multicast buffer or the associated unicast buffer is based at least in part on the current status of the multicast buffer and the associated unicast buffer or the determination for checking the multicast buffer or the associated unicast buffer is based at least in part on prior determinations.

However, Du further discloses a buffer for storing unicast packets and a buffer for storing multicast packets before transmission (col.11, lines 14-25).

Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to use buffer memories for storing packets, in order to modify the packets and transmits the packets accordingly.

As to claim 14, Dyer further discloses where at least one modulator of the plurality of modulators is a radio frequency modulator (col.8, line 27-67 and col.9, line 26-col.10, line 1+)

As to claim 15, Dyer further discloses where the radio frequency modulator is a QAM modulator (col.8, line 27-67 and col.9, line 26-col.10, line 1+).

As to claim 16, Dyer further discloses wherein the packets of the transport stream include packets conforming to MPEG protocols, and depending upon a

management field in the data unit header, the given packet has a first PID when it is received and a second PID when it is transmitted, where the second PID is different from the first PID, wherein the management field includes information regarding PID remapping of the first PID to the second PID (col.7, lines 48-67).

As to claim 17, Dyer further discloses receiving a second transport stream at a second input port, the second transport stream including a plurality of packets; extracting from the first and second transport streams each packet that is to be transmitted from at least one modulator of the plurality of modulators; and sorting extracted packets into a plurality of groups, the plurality of groups including a multicast group that includes multicast packets from the first and second transport streams and at least one unicast group that includes unicast packets from the first and second transport streams (col.8, lines 27-67, col.9, line 26-col.10, line 1+ and col.15, line 42-col.16, line 1+).

As to claim 19, Dyer further discloses wherein the at least one unicast group is a plurality of unicast groups, each unicast group is associated with a given modulator of the plurality of modulators, and where the data unit header identifies the given modulator of the plurality of modulators from which the unicast group is transmitted (col.8, lines 27-67, col.9, line 26-col.10, line 1+ and col.15, line 42-col.16, line 1+).

As to claim 20, Dyer further discloses wherein the first and second transport streams include packets that conform to MPEG protocols (col.7, lines 48-67).

As to claim 21, Dyer further discloses wherein at least one packet of the first transport stream has a first PID value associated therewith and at least one packet of

the second transport stream has a second PID value associated therewith, and wherein the first Pm value and the second Pm value are the same value (col.7, lines 48-67, col.8, lines 27-67, col.9, line 26-col.10, line 1+ and col.15, line 42-col.16, line 1+).

As to claim 22, Dyer further discloses wherein when a packet conforming to MPEG protocols is received the packet has a first PID value associated therewith, and the packet has a second PID value associated therewith when the packet is transmitted and when the packet is a multicast packet (col.7, lines 48-67, col.8, lines 27-67, col.9, line 26-col.10, line 1+ and col.15, line 42-col.16, line 1+).

As to claim 23, the claimed "An apparatus in a digital network that receives a transport stream and transmits a plurality of transport streams, the apparatus comprising..." is composed of the same structural elements that were discussed with respect to the rejection of claim 1.

Claims 26-35 are met as previously discussed with respect to claims 6-13.

Claim 36 is met as previously discussed with respect to claim 14.

Claim 37 is met as previously discussed with respect to claim 15.

Claim 38 is met as previously discussed with respect to claim 16.

Claim 39 is met as previously discussed with respect to claim 17.

Claim 40 is met as previously discussed with respect to claim 18.

Claim 41 is met as previously discussed with respect to claim 19.

Claim 42 is met as previously discussed with respect to claim 20.

Claim 43 is met as previously discussed with respect to claim 21.

Claim 44 is met as previously discussed with respect to claim 22.

As to claim 56, Dyer further discloses where the multimodulator further comprises an output buffer associated with each of the plurality of modulators, the method further comprising storing each of the copied multicast packets into a respective one of the output buffers according to which of the plurality of modulators are identified in the data unit header (fig.2, 6, col.8, lines 27-67, col.9, line 26-col.10, line 1+ and col.15, line 42-col.16, line 1+).

Claim 57 is met as previously discussed with respect to claim 1.

Claim 58 is met as previously discussed with respect to claim 4.

As to claim 59, the claimed "A multimodulator in a broadband delivery system of digital network that receives at least one transport stream..." is composed of the same structural elements that were discussed with respect to the rejection of claim 1.

As to claims 60-62, Dyer further discloses a packet requester that sends the request for a data packet for given one of the plurality of modulators that is determined to be ready to receive a data packet, the packet requestor placing at least the payload portion of the retrieved data unit packet in the output buffer indicated in the data unit header thereof, where if the retrieved data unit packet is a multicast packet, the packet requestor copies at least the payload portion of the retrieved data packet and stores each copy of the data packet to a respective one of the output buffers indicated in the data unit header; wherein the packet requestor strips the data unit header from the data unit packet before the retrieved packet is stored in each output buffer for transmission. (fig.2, 6, col.4, lines 12-26, line 31-59, col.6, line 37-col.7, line 29, line 48+ and col.8, lines 27-67, col.9, line 26-col.10, line 1+ and col.15, line 42-col.16, line 1+).

Claims 63-64 are met as previously discussed with respect to claim 4.

As to claim 65, Dyer further discloses a request counter that is adapted to keep count of packet requests from the packet requestor for each of the modulators, and the packet counter increasing a packet request count for a particular modulator when a packet is requested for the particular modulator and decreasing the packet request count for the particular modulator when a packet is sent to the output buffer particular modulator (col.8, lines 27-67, col.9, line 26-col.10, line 1+ and col.15, line 42-col.16, line 1+)

Claim 66 is met as previously discussed with respect to claim 1.

Claim 67 is met as previously discussed with respect to claim 14.

Claim 68 is met as previously discussed with respect to claim 15.

Claim 69 is met as previously discussed with respect to claim 16.

Claim 70 is met as previously discussed with respect to claim 17.

Claim 71 is met as previously discussed with respect to claim 19.

Claim 72 is met as previously discussed with respect to claim 20.

Claim 73 is met as previously discussed with respect to claim 21.

Claim 74 is met as previously discussed with respect to claim 22.

### ***Conclusion***

5. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See

MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to **Annan Q. Shang** whose telephone number is **571-272-7355**. The examiner can normally be reached on **700am-400pm**.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, **Christopher S. Kelley** can be reached on **571-272-7331**. The fax phone number for the organization where this application or proceeding is assigned is **571-273-8300**.



Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the **Electronic Business Center (EBC) at 866-217-9197 (toll-free)**. If you would like assistance from a **USPTO Customer Service Representative** or access to the automated information system, **call 800-786-9199 (IN USA OR CANADA) or 571-272-1000**.

/Annan Q Shang/

Primary Examiner, Art Unit 2424

**Annan Q. Shang**